UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/514,411	11/15/2004	Hiroshi Yamada	1806.1003	4369

21171 7590 12/01/2006

STAAS & HALSEY LLP
SUITE 700
1201 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

EXAMINER	
JOHNSON, CONNIE P	

ART UNIT	PAPER NUMBER
1752	

DATE MAILED: 12/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/514,411	YAMADA ET AL.	
	Examiner	Art Unit	
	Connie P. Johnson	1752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 August 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The remarks and amendment filed August 24, 2006 have been entered and fully considered.

2. Claims 1-13 are presented.

3. The Obvious-type Double Patent rejection over claims 1, 2, 4 and 8-13 is withdrawn.

4. The 103(a) over Takemiya in view of Kakishita for claims 1-5 and 8-13 is withdrawn.

Terminal Disclaimer

5. The terminal disclaimer filed on August 24, 2006 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of U.S. Patent No. 7,029,825 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1-5 and 8-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takemiya et al., U.S. Patent No. 6,372,351 B1 in view of Kakishita et al., U.S.

Patent No. 6,387,594 B1 and further in view of Mori et al., U.S. Patent No. 6,399,270 B1.

Takemiya teaches a resin composition comprising an epoxy resin, a non-conductive carbon and an inorganic filler (col. 2, lines 44-47). The resin composition is photosensitive because the composition is exposed to laser light (see column 14, lines 65-67). The epoxy resin, acrylic resins and fluorine resins meet the limitations of thermoplastic and solvent-soluble resins. Table 1, example 1 discloses the epoxy resins in an amount of 100 parts by weight and an arylakyl phenolic resin in an amount of 87 parts by weight in the composition. The composition further comprises a coupling agent (organic compound) such as vinyltriethoxysilane and meets the limitations of a polymerizable unsaturated group per molecule. The inorganic filler may comprise powders of fused silica, alumina and zirconia. The inorganic filler may also comprise a spherical particle shape (col. 9, lines 15-28). The composition may comprise a non-conductive carbon material (carbon black covered with an insulating, inorganic material such as silica) and having an average particle diameter of 0.3 to 5μm (col. 8, line 59), surface area of $130m^2/g$ or smaller, and a DBP oil absorption of $120cm^3/100g$ (120ml/100g) or less (col. 10, lines 34-40). Since the non-conductive carbon material has an average particle diameter of 0.3 to 5μm, it also would have a pore volume of 0.1 ml/g to 10ml/g. Takemiya teaches that there are no limitations on the carbon black used in the carbon-included filler. Therefore the inorganic porous material is exemplified in the carbon-included filler obtained by covering particle surfaces of carbon black with

insulating inorganic matter, such as silica (see col. 7, lines 30-35). Takemiya does not teach the process of forming a relief printing element with the resin composition.

However, Kakishita teaches a plate making film comprising a substrate, a hydrophilic, transparent film layer and a polymeric layer. The transparent film layer (elastomeric layer) comprises a photosensitive polyurethane resin. The polyurethane resin is in a liquid state at room temperature, subsequently becoming a plastic film after heating (col. 11, lines 45-60). The resin is coated onto a transparent plastic substrate, which is representative of a sheet composition. The resin is then irradiated to crosslink the polymeric compound in the resin, which is representative of photocuring as in instant claim 9 (col. 6, lines 17-22 and 61-65). The composition also comprises a polymeric compound with a molecular weight of 150,000 (col. 11, line 54). Applicant is reminded that claim 9 is a product by process claim, refer to MPEP 2113, "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). The resin composition was exposed, washed with water and exposed again. This process removes selected areas of the resin that are not used to form a letterpress. The composition has a Shore hardness of 60 degrees (col. 12, lines 25-45). The laser exposure is a form of heating and therefore meets the limitations of instant claim 13. It would have been obvious to

one of ordinary skill in the art to combine the product of Takemiya with the process of Kakishita because Kakishita teaches the plate making process comprising a photosensitive resin composition with the same components as Takeyima. Takemiya nor Kakishita teaches the molecular weight of an organic compound of less than 5,000.

However, Mori teaches a printing plate comprising a component layer with inorganic porous particles (col. 6, lines 34-43). The component layer also comprises a plastic resin and an organic compound (col. 43, line 39). The plastic resin may comprise thermally fusible materials, such as novolac and acryl resins that have a softening point of 50 to 200^{0}C (col. 13, line 54 and col. 14, line 15). The plastic resins in the printing plate may further comprise a solvent-soluble resin, such as a polyimide resin (col. 11, line 57). The organic compound has a molecular weight of 400 to 1,000 and is present in an amount of 5 to 70% of the photosensitive layer, therefore is present at least in an amount equivalent to 5 to 200 parts by weight of the resin (col.44, line 51-56). This compound meets the limitation of the present claimed organic compound in instant claim 1. The organic compound also meets the limitations of instant claim 4. The printing plate is exposed to infrared laser and developed to remove unexposed areas (col. 48, lines 23-36). Therefore, a relief printing element is formed. It would have been obvious to one of ordinary skill in the art to add an organic compound with the molecular weight of 400 to 1,000 to the photosensitive composition of Mori because Mori teaches a photosensitive composition with the same components in the same parts by weight, therefore the organic compound would have a molecular weight in the claimed range.

8. Claims 1, 2, 5, 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takemiya et al., U.S. Patent No. 6,372,351 B1 in view of Kakishita (above) and Mori (above) as applied to claim 1 above, in view of Watanabe et al., U.S. Patent Publication No. 2002/0045126 A1 and further in view of Mohr et al., U.S. Patent no. 5,851,649.

Takemiya teaches an epoxy resin composition comprising an epoxy resin, a non-conductive carbon and an inorganic filler (col. 2, lines 44-47). Takemiya does not teach the sphericity of the silica particles or polyhedral particles as in instant claim 6.

However, Watanabe teaches a photocurable composition comprising spherical silica particles. The spherical silica particles have a sphericity of 0.95 or more (page 5, [0056]). Watanabe also teaches the spherical silica particles may also comprise an average particle diameter of 1-50μm. Therefore, it would have been obvious to one of ordinary skill in the art to use particles having a sphericity amount as claimed because Watanabe shows the sphericity amount as conventional in photosensitive resins. Watanabe does not teach polyhedral particles.

However, Mohr teaches inorganic porous particles, such as polyhedral crystals with a pore size distribution of smallest (10%) to largest (90%) sphere in the polyhedral particle (D_{10}/D_{90}) is no more than 3 (abstract). According to figure 3 in the Mohr reference, the pore volume distribution is at 100% when the pore diameter of the particle is approximately 5-10nm (0.005-0.010μm). Therefore, it would have been obvious to one of ordinary skill in the art that the polyhedral particles having a D_{10}/D_{90}

ratio of 3 would be expected to have a D_3/D_4 ratio of 1 to 3 because the values are based on pore volume distribution and diameter.

Response to Arguments

12. Applicant's arguments, see pages 13-24, filed 8/24/2006, with respect to the rejection(s) of claim(s) 11-5 and 8-13 under 103(a), claims 1, 3, 4 and 8 under 103(a) and claims 1, 2, 5, 6 and 7 under 103(a) have been fully considered and are persuasive. Therefore, the rejections have been withdrawn. However, upon further consideration, new ground(s) of rejection are made herein.

13. Applicant argues that the epoxy resin, curing agent and the non-conductive carbon are do not correspond to the resin, organic compound and inorganic porous material in claim 1. Further, the organic compound is used for improving the curing properties of the resin and that the organic compound of Takemiya is used differently than the instant invention. Examiner disagrees for the following reasons.

14. First, Applicant does not claim a particular resin or organic compound in the instant application. Therefore, any resin and organic compound that has the limitations of (a) and (b), would anticipate the claims. That the combination of components (a) and (b) provide an "excellent photosensitive resin" and further, that (b) is used for "improving the curing properties of the resin" refer to the intended use of the components and are not claimed.

15. Applicant argues that the resin composition of Takemiya is not a photosensitive resin composition. The composition of Takeyima is photosensitive because it is exposed

to light. Any composition that comprises components (a), (b) and (c) would meet the limitations of a photosensitive resin composition as claimed.

16. Applicant argues that Takemiya does not teach the oil absorption and surface area of the non-conductive carbon. Examiner directs Applicant to col. 10, lines 34-44 of the reference. Takemiya teaches the DBP oil absorption and specific surface area of carbon black particles. The non-conductive carbon material is formed by covering carbon black particles with inorganic porous material. Further, Takemiya teaches that there are no limitations on the carbon black used in combination with the inorganic filler (see column 7, lines 23-60). Therefore, the DBP oil absorption and specific surface area limitations taught by Takemiya are limitations that apply to the non-conductive carbon material.

17. Applicant argues that carbon black is not an inorganic porous material. Takemiya teaches that the carbon black is covered by an inorganic porous material, which thereby changes the composition of the carbon black to a non-conductive material. Therefore, the non-conductive carbon no longer has the characteristics of carbon black.

18. Applicant argues that Kakishita does not teach a relief pattern and further that the transparent film layer is in fact a photomask. Applicant is directed to example 1, which specifically teaches forming a relief pattern. Applicant is directed to col. 12, line 42 where flexography is used. Flexography is synonymous with flexography. The transparent film has a layer of polymeric compound. The layer of polymeric compound

is exposed, rinsed and exposed again. The resulting pattern is a relief pattern formed on the plastic film substrate.

19. Applicant argues that Kakishita does not teach or suggest a multi-layered, laser engravable printing element which comprises a printing element layer and an elastomer layer. Based on the teachings of Kakishita, the transparent film layer and polymer layers are equivalent to the elastomer and printing element layers, respectively.

20. Applicant argues that Kakishita does not teach or suggest a method for producing a laser engraved printing element in which the relief pattern is formed by a laser engraving method. In columns 11 and 12, the examples show a method of forming a relief by forming layers of a printing element, exposing and washing the composition to remove unexposed portions of the film. The composition of Kakishita, combined with Takemiya and Mori meets the limitation of a laser engravable composition, according to claim 1.

21. Applicant argues that Kakishita does not teach or suggest about the heating process defined in claim 13. Applicant is directed to column 6, lines 60-65, wherein Kakishita teaches applying the polymeric layer onto a transparent film and irradiating the film with UV or gamma rays to crosslink the polymeric compound.

22. Applicant argues that Kakishita does not teach or suggest about a laser engraving method for forming a printing plate and the use of inorganic porous material for the absorption removal of laser engraving debris. Kakishita teaches a composition comprising a polymer layer which may also comprise radiation sensitive dyes. Further, the polymer layer is applied to a plastic film layer (sheet). The polymeric resin is heat

cured (crosslinked) and exposed to UV or gamma light rays. The layer is then washed to remove unexposed areas. This process forms a relief pattern. (see examples in column 11 and 12).

23. Applicant argues that it is not obvious to combine the Takemiya and Kakishita references. Examiner disagrees. Takemiya teaches a photosensitive resin and Kakishita teaches using a photosensitive resin as conventional in printing plate compositions. The compositions of Takemiya and Kakishita are photosensitive because they are exposed to light.

24. Applicant argues that the organic compound of Mori is acid decomposing. This is an intended use and therefore still meets the limitation of an organic compound according to claim 1.

25. Applicant argues that the inorganic porous material of the component layer are used to enhance water receptivity of the substrate. Again, Applicant is arguing intended use of a component in a product claim. Therefore, the intended use does not mean that the compound will not comprise any other chemical characteristic and is capable of performing in the same manner as Applicant intends. Further, Applicant does not claim the inorganic porous material in any particular layer in the product claim.

26. Applicant argues that Watanabe does not teach or suggest the average pore diameter and pore volume of the spherical silica particles. The pore volume and average pore diameter of the spherical particles is not claimed, only the sphericity value as taught by Watanabe.

27. Applicant argues that Watanabe does not teach or suggest about printing element made of the resin composition and laser engraving composition. By comprising the components a, b and c, the resin composition meets the limitations of a printing element as claimed.

28. Applicant argues that Mohri does not teach or suggest a description about pores of the inorganic particles forming the porous sintered body, wherein the pore size distribution is referring to the sintered body, not the spherical particles. Examiner disagrees. The pore volume distribution is referred to the inorganic particles, wherein the pore volume distribution is determined by the pore diameter of the inorganic particles (see figure 3). Therefore, according to figure 3 of Mohri, the pore volume distribution is not referring to void space, but the size distribution of the inorganic particles.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Connie P. Johnson whose telephone number is 571-272-7758. The examiner can normally be reached on 7:30am-4:00pm Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Connie P. Johnson 11/27/06

Connie P. Johnson
Examiner
Art Unit 1752

CYNTHIA H. KELLY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700

Cynthia H Kelly